

# PNP small signal transistor

## BC857B

### ●Features

- 1) Ideal for switching and AF amplifier applications.
- 2) High current gain.

### ●Packaging specifications

Type	Package	Taping
	Code	T116
	Basic ordering unit (pieces)	3000
BC857B		○

### ●Absolute maximum ratings (Ta=25°C)

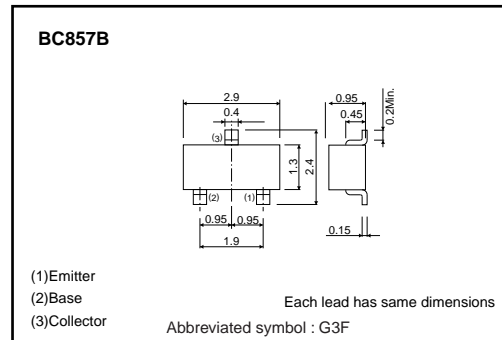
Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CB0}$	-50	V
Collector-emitter voltage	$V_{CE0}$	-45	V
Emitter-base voltage	$V_{EB0}$	-5	V
Collector current	$I_C$	-0.1	A
Collector power dissipation	$P_C$	0.20	W
		0.35	W *
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-65 to 150	°C

\* Mounted on a 7×5×0.6 mm CERAMIC SUBSTRATE

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	$BV_{CE0}$	-45	-	-	V	$I_C = -1\text{mA}$
Collector-base breakdown voltage	$BV_{CB0}$	-50	-	-	V	$I_C = -50\mu\text{A}$
Emitter-base breakdown voltage	$BV_{EB0}$	-5	-	-	V	$I_E = -50\mu\text{A}$
Collector-base cutoff current	$I_{CB0}$	-	-	-0.015	$\mu\text{A}$	$V_{CB} = -30\text{V}$
Collector-emitter saturation voltage	$V_{CE(sat1)}$	-	-	-0.3	V	$I_C/I_B = -10\text{mA} / -0.5\text{mA}$
	$V_{CE(sat2)}$	-	-	-0.65	V	$I_C/I_B = -100\text{mA} / -5\text{mA}$
Base-emitter voltage	$V_{BE(on)}$	-0.6	-	-0.75	V	$V_{CE} = -5\text{V}, I_C = -10\text{mA}$
DC current transfer ratio	$h_{FE}$	210	-	480	-	$V_{CE} = 5\text{V}, I_C = -2\text{mA}$
Transition frequency	$f_T$	-	250	-	MHz	$V_{CE} = -5\text{V}, I_E = 20\text{mA}, f = 100\text{MHz}$
Collector output capacitance	$C_{ob}$	-	-	4.5	pF	$V_{CB} = -10\text{V}, f = 1\text{MHz}$
Collector-base cutoff current	$I_{CBO}$	-	-	-4	$\mu\text{A}$	$V_{CB} = -30\text{V}$

### ●Dimensions (Unit : mm)



●Electrical characteristics curves

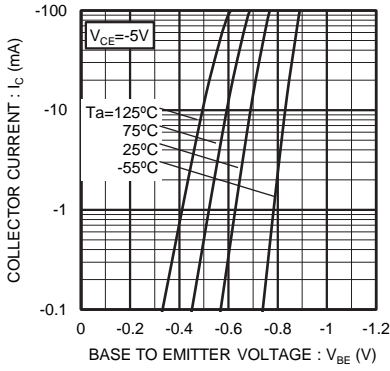


Fig 1. Grounded Emitter Propagation Characteristics

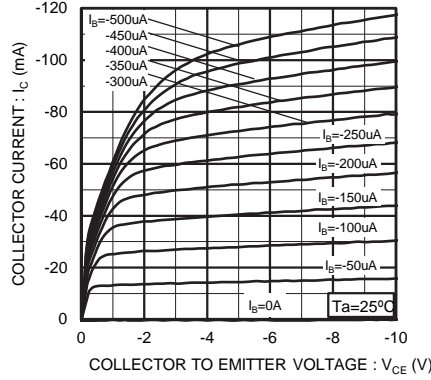


Fig 2. Grounded Emitter Output Characteristics (I)

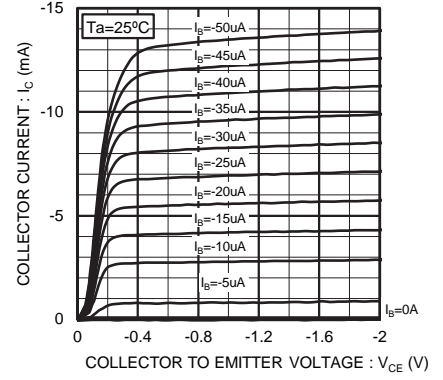


Fig 3. Grounded Emitter Output Characteristics (II)

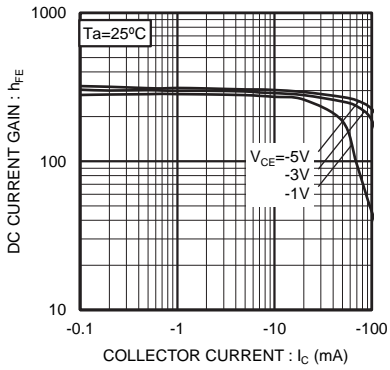


Fig 4. DC Current Gain vs. Collector Current (I)

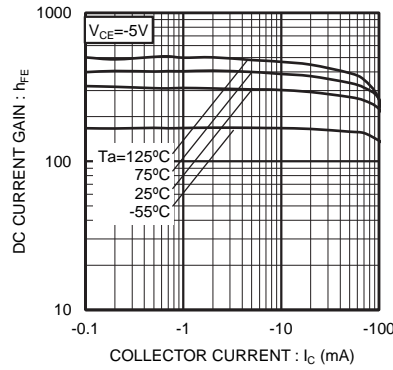


Fig 5. DC Current Gain vs. Collector Current (II)

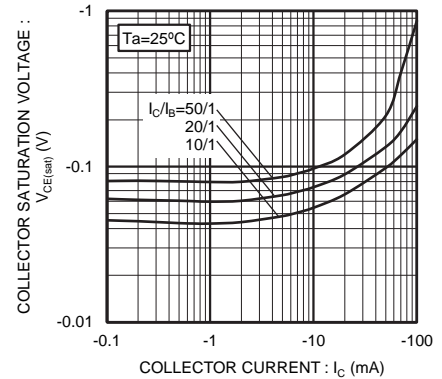


Fig 6. Collector Saturation Voltage vs. Collector Current (I)

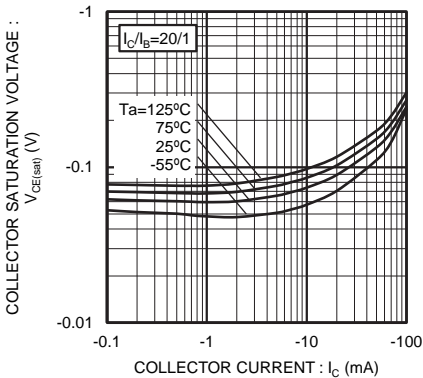


Fig 7. Collector Saturation Voltage vs. Collector Current (II)

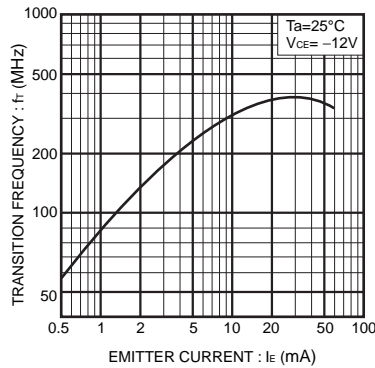


Fig 8. Gain bandwidth product vs. emitter current

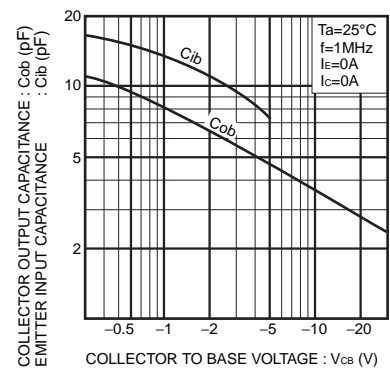


Fig.9 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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